WHAT IS CLAIMED IS:

1. A laser apparatus capable of emitting laser beams of a plurality of different wavelengths, the apparatus including:

a solid-state laser medium which emits light of a plurality of different peak wavelengths;

a resonance optical system which resonates the emitted light of the plurality of different peak wavelengths and converts respective light to oscillate the laser beams of the plurality of different wavelengths; and

a 1/4 wave plate for a wide band, which is placed in the resonance optical system and has a property of providing a uniform phase difference to the light of the plurality of different peak wavelengths to be converted.

2. The laser apparatus according to claim 1, wherein the resonance optical system includes:

a first resonance optical system which includes a first wavelength converting element, and resonates the emitted light of a first peak wavelength and converts the light of the first peak wavelength to second harmonic light to oscillate a first laser beam; and

a second resonance optical system which includes a second wavelength converting element and uses a part of an optical path in common with the first resonance optical system, and resonates the emitted light of a second peak wavelength and converts the light of the second peak wavelength to second harmonic light to oscillate a second laser beam; and

the 1/4 wave plate is placed on the optical path used in common between the first and second resonance optical systems.

3. The laser apparatus according to claim 2, wherein

the apparatus further includes a reflection mirror placed to be movable with respect to the common use optical path, and

the first and second resonance optical systems are selectively used in association with movement of the reflection mirror.

4. The laser apparatus according to claim 3, wherein

the reflection mirror is placed to be insertable in and removable from the common use optical path and the first and second resonance optical systems are selectively used in association with insertion/removal of the reflection mirror.

5. The laser apparatus according to claim 4 further including an insertion and removal unit which inserts and removes the reflection mirror in and from the common use optical path by rotating the reflection mirror without changing an angle of a reflection plane of the mirror with respect to an optical axis of the common use optical path.

6. The laser apparatus according to claim 2 further including an output mirror which is placed on the common use optical path and has a property of reflecting the light of the first and second peak wavelengths while transmitting the first and second laser beams.

7. The laser apparatus according to claim 1, wherein the 1/4 wave plate is constructed of a combination of a quartz plate and a magnesium fluoride plate.

8. The laser apparatus according to claim 1 being an ophthalmic laser treatment apparatus wherein the resonance optical system converts light of a peak wavelength in an infrared region to a laser beam of a wavelength in a visible region.